

CLAIMS

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1. A resin molded type semiconductor device comprising: a semiconductor chip which is mounted on a die pad portion of a lead frame; thin metal wires which electrically connect terminals of an upper face of said semiconductor chip to inner lead portions of the lead frame; a sealing resin which seals an outer peripheral region of said semiconductor chip, said region including a thin metal wire region of the upper face of said semiconductor chip, and a lower region of said die pad portion; and outer lead portions which are arranged in a bottom face region of said sealing resin, and characterized in that said lead frame is subjected to an upsetting process so that said die pad portion is located at a position higher than said inner lead portions.

2. A resin molded type semiconductor device comprising: a semiconductor chip which is mounted on a die pad portion of a lead frame; thin metal wires which electrically connect terminals of an upper face of said semiconductor chip to inner lead portions of said lead frame; a sealing resin which seals an outer peripheral region of said semiconductor chip, said region including a thin metal wire region of the upper face of said semiconductor chip; and outer lead portions which are arranged in a bottom face region of said sealing resin and which are formed to be continuous to respective inner lead portions, and characterized in that at least one groove portion is formed in a surface of each of said inner lead portions.

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3. A resin molded type semiconductor device comprising: a semiconductor chip which is mounted on a die pad portion of a lead frame; thin metal wires which electrically connect terminals of an upper face of said semiconductor chip to inner lead portions of said lead frame; a sealing resin which seals an outer peripheral region of said semiconductor chip, said region including a thin metal wire region of the upper face of said semiconductor chip; and outer lead portions which are arranged in a bottom face region of said sealing resin and which are formed to be continuous to respective inner lead portions, and characterized in that a plurality of groove portions are formed in a surface of each of said inner lead portions, and a connecting portion of said thin metal wire on a side of said inner lead portion is disposed between said groove portions.

4. A resin molded type semiconductor device comprising: a semiconductor chip which is mounted on a die pad portion of a lead frame; thin metal wires which electrically connect terminals of an upper face of said semiconductor chip to inner lead portions of said lead frame; a sealing resin which seals an outer peripheral region of said semiconductor chip, said region including a thin metal wire region of the upper face of said semiconductor chip; and outer lead portions which are arranged in a bottom face region of said sealing resin and which are formed to be continuous to respective inner lead portions, and characterized in that a widened portion is formed in each

of said inner lead portions.

5. A resin molded type semiconductor device comprising: a semiconductor chip which is mounted on a die pad portion of a lead frame; thin metal wires which electrically connect terminals of an upper face of said semiconductor chip to inner lead portions of said lead frame; a sealing resin which seals an outer peripheral region of said semiconductor chip, said region including a thin metal wire region of the upper face of said semiconductor chip; and outer lead portions which are arranged in a bottom face region of said sealing resin and which are formed to be continuous to respective inner lead portions, and characterized in that a widened portion is formed in each of said inner lead portions and at least one groove portion is formed in a surface.

6. A resin molded type semiconductor device comprising: a semiconductor chip which is mounted on a die pad portion of a lead frame; thin metal wires which electrically connect terminals of an upper face of said semiconductor chip to inner lead portions of said lead frame; a sealing resin which seals an outer peripheral region of said semiconductor chip, said region including a thin metal wire region of the upper face of said semiconductor chip; and outer lead portions which are arranged in a bottom face region of said sealing resin and which are formed to be continuous to respective inner lead portions, and characterized in that a widened portion is formed in each

of said inner lead portions, a plurality of groove portions are formed in a surface, and connecting portions of said thin metal wires on a side of said inner lead portion are disposed between said groove portions. *adjacent*

a 7. A resin molded type semiconductor device according to claim 1, ~~2, 3, 4, 5, or 6~~, wherein exposed faces of said outer lead portion are arranged in a same level as an outer face of said sealing resin.

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8. A method of manufacturing a resin molded type semiconductor device comprising the steps of: performing an upsetting process on a lead frame so that a die pad portion is located at a position higher than inner lead portions; bonding a semiconductor chip to said die pad portion of said lead frame; electrically connecting terminals of said semiconductor chip to said inner lead portions of said lead frame by thin metal wires; sealing an outer peripheral region of said semiconductor chip, thereby forming a sealing resin, said region including a region of an upper face of said semiconductor chip and electrically connected by said thin metal wires, and a lower region of said die pad portion; and shaping outer lead portions of the lead frame so as to be exposed from an outer face of said sealing resin.

9. A method of manufacturing a resin molded type semiconductor device characterized in that said method comprises the steps of: bonding a semiconductor chip to a lead frame having inner lead portions in each of which a widened portion is disposed and at

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least one groove portion is formed in a surface; electrically connecting terminals of said semiconductor chip to said inner lead portions of said lead frame by thin metal wires; sealing an outer peripheral region of said semiconductor chip, thereby forming a sealing resin, said region including a region of an upper face of said semiconductor chip and electrically connected by said thin metal wires, and a lower region of said semiconductor chip; and shaping outer lead portions of said lead frame so as to be exposed from an outer face of said sealing resin, and, when said terminals of said semiconductor chip are to be electrically connected to said inner lead portions by said thin metal wires, the connection is performed while connecting portions of said thin metal wires on the side of said inner lead portions are disposed in the vicinity of said groove portion.

10. A method of manufacturing a resin molded type semiconductor device characterized in that said method comprises the steps of: bonding a semiconductor chip to a lead frame having inner lead portions in each of which a widened portion is disposed and a plurality of groove portions are formed in a surface; electrically connecting terminals of said semiconductor chip to said inner lead portions of said lead frame by thin metal wires; sealing an outer peripheral region of said semiconductor chip, thereby forming a sealing resin, said region including a region of an upper face of said semiconductor chip and electrically connected by said thin metal wires, and a lower region of said

semiconductor chip; and shaping outer lead portions of said lead frame so as to be exposed from an outer face of said sealing resin, and, when said terminals of said semiconductor chip are to be electrically connected to said inner lead portions by said thin metal wires, the connection is performed while connecting portions of said thin metal wires on the side of said inner lead portions are disposed between said groove portions.

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